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67. Proposed by B. F. FINKEL, A. M., M. Sc., Professor of Mathematics and Physics, Drury College, Springfield, Mo.

A person writes  $n$  letters and addresses  $n$  envelopes; if the letters are placed in the envelopes at random, what is the probability that every letter goes wrong? [From *Hall and Knight's Higher Algebra*.]

\*\*\* Solutions of these problems should be sent to B. F. Finkel, not later than August 10.

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### MISCELLANEOUS.

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62. Proposed by G. B. M. ZERR, A. M., Ph. D., President and Professor of Mathematics, The Russell College, Lebanon, Va.

How many bushels of wheat will a conical bin 8 feet in diameter at base and 12 feet high, hold, if part of the bin is cut off by a plane parallel to the side and passing through the center of the base?

63. Proposed by F. P. MATZ, D. Sc., Ph. D., Professor of Mathematics and Astronomy, Irving College, Mechanicsburg, Pa.

Show that the path of a projectile moving with a constant velocity is an inverted catenary of equal strength.

\*\*\* Solutions of these problems should be sent to J. M. Colaw, not later than August 10.

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## EDITORIALS.

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The degree of Civil Engineer has been conferred on our valued contributor, Fremont Crane, by the University of Minnesota.

In our next issue will appear an article on Symmetric Functions, by Professor E. D. Roe, Associate Professor of Mathematics in Oberlin College, now at Erlangen, Germany.

Dr. David Eugene Smith, Professor of Mathematics in the Michigan State Normal School, has accepted the Presidency of the New York State Normal School, at Rockport.

In our last issue, the last two pages of the MONTHLY were hurried into print without our having read the proof. That we might have the opportunity of eliminating some of the errors which thus appeared in them, we have had those two pages reprinted and bound in the present issue. This, we are sure, will be appreciated by those who wish to have the volumes of the MONTHLY bound.

THE UNIVERSITY OF CHICAGO. During the summer quarter (July 1 to September 23, 1898) the following mathematical courses (four or five hours weekly) will be offered:—By Associate Professor Maschke: Theory of Invariants; Functions of a Complex Variable;—By Assistant Professor Young: Mathematical Pedagogy (to August 15); Culture Calculus; Plane Trigonometry (to August

15); College Algebra (after August 15, ten hours weekly):—By Dr. Hancock : Calculus of Variations ; Theory of Equations (advanced):—By Dr. Slaughter : Advanced Integral Calculus ; Plane Analytics :—By Dr. Miller (of Cornell University): Seminar in Permutation Groups (to August 15).

General circulars of information and programmes of the Department of Mathematics may be obtained from the Examiner of the University.

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### BOOKS AND PERIODICALS.

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*Lessons in Elementary Mechanics.* Introductory to the study of Physical Science, designed for the use of Schools and of Candidates for the London Matriculation and other examinations, with numerous exercises. By Sir Philip Magnus, author of Class-Book on Hydrostatics and Pneumatics, etc. New Edition, Rewritten and Enlarged in 1892. Fourth Thousand. 8vo Cloth, 377 pages. Price, \$2.25. New York : Longmans, Green & Co.

At the present time, there is a very great demand for a thorough knowledge of the principles of mechanics. The present high civilization, while due to many influences, is, however, more largely due to the increased knowledge of the laws of nature and her modes of operation. The little work before us is designed to give the beginner a thorough understanding of all the elementary principles of mechanics. The style is lucid, the work compact and comprehensive, the illustrative problems well chosen, and the numerous exercises carefully graded. B. F. F.

*A Discussion of the Cyclic Quadrilateral.* By J. C. Gregg, A. M., Superintendent of Schools, Brazil, Ind. Pamphlet, 5 pages.

This is a very good discussion, and is illustrated by two figures. B. F. F.

*Annals of Mathematics.* Edited by Wm. H. Echols. Published under the auspices of the University of Virginia. Price, \$2.00 per year in advance.

The May number contains an article on the Calculus of Variation, by Dr. Harris Hancock ; Notes on Some Points in Theory of Linear Differential Equations, by Dr. Maxime Bocher ; On Triple Focus of a Cartesian, by Dr. Carl C. Engberg ; Direct Derivation of Ordinary Canonical System of Elliptic Elements Employed in the Problem of Three Bodies. The June number : The Law of the Mean and the Limits of  $0/0$ ,  $\infty/\infty$ , by Prof. W. F. Osgood ; Certain Invariants of a Quadrangle by Projective Transformations, by Dr. Edgar Odell Lovett ; The General Transformation of the Group of Euclidean Movements, by Prof. J. M. Page ; Concomitant Binary Forms in Terms of the Roots, by Miss Annie L. MacKennon. B. F. F.

*The American Monthly Review of Reviews.* An International Illustrated Monthly Magazine. Edited by Dr. Albert Shaw. Price, \$2.50 per year, in advance. Single number, 25 cents. The Review of Reviews Co., New York.

"The Progress of the World," the editorial department of the *Review of Reviews*, gives not only a complete history of the war to date, but also a full discussion of the collateral issues involved, such as the acquisition of new territory and the proposed alliances with other powers. B. F. F.

*The Cosmopolitan.* An International Illustrated Monthly Magazine. Edited by John Brisben Walker. Price, \$1.00 per year in advance. Irvington-on-the-Hudson, New York.

In the June number is a most excellent article on Liquid Air. This article alone is worth a years subscription to the magazine. B. F. F.